

### **Abstract of the Disclosure**

A apparatus 10,110 is provided that measures the speed of sound and/or vortical disturbances propagating in a fluid or mixture having entrained gas/air to determine the gas volume fraction of the flow 12 propagating through a pipes and compensating or correcting the volumetric flow measurement for entrained air. The GVF meter includes and array of sensor disposed axially along the length of the pipe. The GVF measures the speed of sound propagating through the pipe and fluid to determine the gas volume fraction of the mixture using array processing. The GVF meter can be used with an electromagnetic meter and a consistency meter to compensate for volumetric flow rate and consistency measurement respective, to correct for errors due to entrained gas/air.